# Timber Harvesting

## PRE-HARVEST PLANNING

HARVESTING OPERATIONS cause a temporary disturbance in the forest. Pre-harvest planning is critical to ensure that operations are conducted in a manner which minimizes impact to water quality.

Note: During harvest design, careful planning and the use of BMPs will minimize soil disturbance and maintain water quality.

### BMPs for Planning

- Identification and delineation of sensitive areas such as SMZs, ephemeral streams, bogs, fragile soils, and steep slopes.
- Use of aerial photographs, timber stand maps, topographic maps, and soil surveys to aid in locating log decks or "sets," skid trails, and access roads.
- The timing and type of harvest depends on soil moisture (hydrology), topography, soil type and soil conditions.
- The application of stabilizing or surfacing materials to roads; for example, stone or board run mats applied to potential trouble spots before the operation begins.

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## STREAMSIDE MANAGEMENT ZONES

A streamside management zone (SMZ) serves as a natural filter of vegetation adjacent to a natural or manmade water body. These zones, also called *riparian* zones, reduce erosion by both slowing the flow of surface water runoff and increasing water filtration. These water bodies may include streams, rivers, bayous, and lakes. To protect water quality, extra precautions may be necessary in carrying out some forest practices.

The key objective of SMZs is to protect and maintain the quality of water on forest lands by the following:

- Maintaining a vegetative filtration strip on ephemeral areas.
- Providing an adequate canopy of forest cover along all perennial streams to maintain normal water and shade conditions.
- Minimizing forest soil erosion by maintaining the appropriate amount of residual ground cover or forest cover under various soil and slope conditions.

When timber is harvested within the SMZ, care should be taken not to compromise the objective of the SMZ.

SMZs should be provided on perennial and intermittent streams and other water bodies. This includes springheads, oxbows, upland flats, and drains bordered by steep or erodible slopes. Any existing drainage structures that over time have come to resemble natural drains are also included.

A *perennial* stream is one that has a well-defined channel and flows year-round except during periods of extreme drought, when they retain pools of water. *Intermittent* streams have seasonal flow and a continuous well-defined channel. *Ephemeral* streams flow during and for a few hours or days after periods of heavy rain and the stream channel is less recognizable than either perennial or intermittent streams.

Streams designated as scenic rivers will be managed in accordance with state law. **See LOUISIANA'S NATURAL AND SCENIC RIVER SYSTEM, page 45.**

SMZ width is dependent on watershed characteristics and the risk of erosion in the SMZ and adjacent area. The risk is increased by sandy soil, steep grade, large watershed size or increasing stream width. Estimated normal flow width is the distance in feet between the water's edge on one side to the water's edge on the other. This width will be estimated at a time when the stream is at its normal (low) flow. Normal flow width will be an average for the stream, taking into consideration the stream will widen as it flows farther from its source.

Note: SMZ widths are measured from the top of each bank and established on each side of the stream. Determination of SMZ width should be site-specific and should be made by foresters or other qualified professionals. Soil type, slope gradient, vegetation cover, volume flow, and stream classification should be taken into consideration when designing each SMZ.

## BMPs for Streamside Management

*Along perennial streams, timber can be harvested carefully within an SMZ provided that the filtering effects of the SMZ are not compromised.*

- Take precautions to protect the remaining timber stands within the SMZ.
- ***Do not remove trees*** from banks, beds or steep slopes if removal will destabilize soil and degrade water.
- Permanent residual tree cover is not required along intermittent and ephemeral streams if vegetation and organic debris are left to protect the forest floor during regeneration.
- Flag or mark SMZs adjacent to all perennial and intermittent streams and lakes before harvesting.
- Plan harvests to minimize stream crossings.
- Locate stream crossings where stream impacts are likely to be minimal.
- Locate roads, skid trails, fire lanes, and logging sets outside the SMZ.
- To minimize damage, limit harvesting on SMZs and sensitive forested wetlands during abnormally wet periods.
- Consider using wide-tire skidders, forwarders, cable skidders, and tracked equipment to minimize soil disturbance in an SMZ.
- Construct stream crossings to minimize stream bank and channel disturbance.
- Cross streams at right angles when practical.
- Consider using portable bridges for temporary stream crossings.
- Promptly remove all temporary crossings and restore the site after harvesting is completed.

## AVOID

- Skidding across perennial or large intermittent streams, except over an adequately designed crossing.
- Excessive skidding within an SMZ.

## Suggested SMZ Widths

| Stream Type | SMZ Width (each side) |
|---|---|
| Intermittent | 35 Feet |
| Perennial | |
| less than 20 feet wide | 50 feet |
| more than 20 feet wide | 100 feet |

Boise Cascade Corporation photo

*Timber harvesting is allowed in the SMZ, providing the objectives of the SMZ are not compromised.*

WESTVACO photo

*SMZs provide a water filtration strip of ground cover on ephemeral areas.*

WESTVACO photo

*An effective SMZ provides adequate canopy of forest cover along all perennial streams to maintain normal water and shade conditions.*

Boise Cascade Corporation photo

*An effective SMZ minimizes forest soil erosion by maintaining the appropriate amount of residual ground or forest cover under various soil and slope conditions.*

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Hancock Timber Resources Group photo

*Modern harvesting equipment is used to control the direction of felling.*

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## FELLING & SKIDDING TECHNIQUES

### BMPs for Skidding

- Use soil surveys, aerial photographs, and topographic maps to help locate skid trails.
- Use the smallest number, width and length of skid trails needed to log the area effectively.
- Use waterbars, wing ditches, or other appropriate practices to slow and disperse water runoff. Construct water bars to divert water rather than block it.
- Keep stream crossings to a minimum.
- Cross streams at right angles and in straight sections of the stream, when practical.
- Skid logs uphill at an angle.
- Scatter logging slash on wetter areas of skid trails to prevent rutting.
- Keep skidder loads light in sensitive areas to reduce rutting and protect drainage integrity.
- Stabilize skid trails to prevent erosion by using waterbars, logging slash, or other appropriate water diversions.
- Establish vegetative cover after smoothing and shaping of bare ground subject to erosion.
- When crossings streams, temporary fills should be removed in their entirety after completion of harvesting operations.
- Restore stream crossings to natural grade and shape.

### AVOID

- Sensitive areas and problem soils.
- Skidding straight up or down steep slopes.
- Long, steep skids. Lay out skid trails on slopes at an angle to break up the grade.
- Water draining down skid trails.
- Skidding in a stream channel even when temporarily dry.
- Skidding across perennial streams or large intermittent streams unless it is done with a properly constructed temporary crossing.
- Excessive damage to remaining timber and other vegetation within SMZs.
- Using existing skid trails if further use will cause excessive soil disturbance.

### BMPs for Felling

- When possible, trees should be directionally felled away from water bodies.
- Remove only tops and limbs which have fallen into any water body during harvesting.
- Inspect all stream courses to be sure they are free from excessive logging debris.

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## LANDINGS, LOG DECKS & SETS

Landings, log decks and sets are temporary locations where logs are assembled for temporary storage, loading and transportation.

### BMPs for Landings

- Use no more sets than are necessary.
- Make sets no larger than necessary.
- Locate sets on firm, well-drained ground away from streams.
- Locate log sets on a slight slope (less than 5%) for drainage whenever possible.
- Locate sets so skidding will have a minimal impact on the natural drainage pattern.
- Locate sets where skidding will avoid road ditches, sensitive sites, and excessive slopes.
- Reshape disturbed areas to minimize soil erosion.
- Seed and fertilize bare areas that would erode before natural vegetation is re-established.

### AVOID

- Locating log decks in SMZs or other sensitive areas.
- Locating log decks where they might result in skidding through sensitive areas.

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## REVEGETATION

### BMPs for Revegetation

- Reestablish vegetation on temporary roads, drainage systems, side slopes, back slopes, skid trails or landings following significant soil disturbances when natural revegetation will not prevent erosion. See Revegetation Of Disturbed Areas in Appendix IV, Page 81.

## EQUIPMENT MAINTENANCE & LITTER

### BMPs for Equipment Maintenance & Litter

- Perform all maintenance away from riparian areas.
- Capture all coolants, oils, fuels, etc. and dispose of waste properly.
- Repair leaks immediately.
- Properly dispose of all trash associated with harvesting. ***DO NOT*** *burn or bury*.

LOGGING TRASH

SEEDED TEMPORARY ROAD